

BOOK REVIEWS

U. S. DEPARTMENT OF AGRICULTURE, ECONOMIC RESEARCH SERVICE, *Taiwan's Agricultural Development: Its Relevance for Developing Countries Today*, Washington, 1968, 93 pp.

This book is the work of Raymond P. Christensen, Director of Foreign Trade Division, Economic Research Service, U.S. Department of Agriculture, and was issued as "Foreign Agricultural Economic Report No. 39" of the E. R. S. Its preparation was originally sponsored by the Agency for International Development which, in looking for reference materials to promote aid to developing countries, approached the Economic Research Service with the request to undertake research on "factors associated with differences and changes in agricultural production in under-developed countries." In compliance with this request, research data were first compiled in the form of "Changes in Agriculture in 26 Developing Nations, 1948-1963" and issued as "Foreign Agricultural Economic Report No. 27." And, Greece, Taiwan, Mexico, Brazil, Colombia, India and Nigeria were chosen as countries wherein studies would be carried out to clarify the "specific relationship between factors and process of changes in agricultural output." The present volume represents the outcome of a similar study carried out in Taiwan.

The book deals mainly with an analysis of the causes and conditions for the rapid development of Taiwan's agricultural production, which contributed enormously to the country's economic growth. The author's justification for taking up Taiwan and for his appraisal of the extent to and manner in which Taiwan's experience may be applied to other developing countries is as follows:

Taiwan has become an important export market for U.S. products—\$333 million in 1967, including \$111 million worth of agricultural products. Taiwan's rapid economic growth made possible its cessation of U. S. economic aid and technical assistance in 1965, although Public Law 480 shipments have continued as needed. Increase in agricultural productivity have helped Taiwan achieve a high rate of economic growth. . . . Gains in agricultural productivity—larger outputs per hectare, per worker, and per units of all resources combined—account for more than half of its growth in total agricultural output since the early 1950's. Taiwan's experience . . . should be of interest to many other developing countries because they share many points of similarity." (p. vii)

The validity of Taiwan's experience in agricultural development for other developing countries is stressed on the ground that both share basic similarities in "rapid population growth, limited land resources, tropical climate, need for irrigation improvements, [and] a long colonial history." (p. vii)

In this sense, Taiwan may be fully qualified to be a so-called "Living model" for development efforts in many developing countries. Her economic growth rate has been as high as 7.6% per annum since 1950, and the annual

rate of her total agricultural output during the same period has been 4.5%. Yet this phenomenal growth has been achieved amid such adverse conditions as commonly prevail in developing countries, as the poverty of land resources, high population pressure, etc.

Then, there arise two questions in the reviewer's mind: one is the structure and process of the development of agricultural productivity in Taiwan. The second is the significance and applicability of such an experience for other developing countries in general. The author's analysis of the former question is reasonably well done in terms of both statistical evaluation and its general treatment.

The characteristic of Taiwan's agricultural development, as pointed out by the author, is its rapid growth of productivity under the adverse conditions of the post World War II era as shown in an absolute increase in farm population with a drastic decline of land available per household. Through the massive population increase brought about by its inflow from mainland China, in addition to an increase in the natural growth rate through the decline in the death rate, the number of farmhouseholds in Taiwan increased from 501,000 in 1945 to 846,000 in 1965. Under circumstances where no substantial expansion of arable land was possible, these factors together resulted in a diminution of the size of the average landholding per household from 1.83 hectares to 1.05 hectares. Nonetheless, agricultural output has been recording annual incremental rates of 4.5% gross and 2.10% per capita, since 1950. Now an increase in labor input inevitably raises total output, as long as the marginal productivity remains above zero. Average productivity, however, turns downward when marginal productivity fails to catch up with average productivity, as is almost always the case in developing countries. But Taiwan is an exception. Where the causes of this phenomenon lie is the key question which must be answered in the book under review.

The development of Taiwan's agricultural productivity is shown as being equivalent to the increase in output per unit of input of land, labor and capital, which is calculated by the author as having more than doubled between 1911 and 1965. Exploring deeper into the causes of this increase, the author notes that factors contributing to increased output include incremental fixed capital inputs in terms of irrigation and drainage, flood-control, etc., side by side with working capital input in the form of fertilizer, chemicals, fodder and others, enabling intensive utilization of farmland and incremental labor input. These factors brought about such concrete results as widespread practice of multiple cropping, overall increase of output per hectare, phenomenal expansion of production of vegetables, fruit and livestock products. Another causal factor has been the continuous introduction of advanced technology and its spread. The author does not neglect to put proper emphasis on the factors which helped accelerate incremental capital input in various forms: an increase of demands both at home and abroad, the appropriate measures taken for price stability, aid from the U. S. A. and, particularly, the redistribution of land among the farmers through the land

reform, which evidently stimulated their willingness to invest in farming. Although there are certain problems with arguments as to the relationship between factors and process of change, the author emphasizes that it is not at all difficult for small-scale farms to increase productivity given adequately favorable environmental conditions.

In looking at the future of Taiwan's agriculture, the author predicts that 1974 will be the turning-point after which a trend toward absolute decline of the farming population will set in, and will be accompanied by the advancement of further capital-intensive farming. According to Christensen's forecast, increasing imports of fodder, soy beans, wheat, etc. will be more than compensated for, by the increasing exports of vegetables, fruit, livestock products and other items.

Ultimately, what is more relevant to the comparative study of agricultural productivity is the discussion of the extent to which Taiwan's experience may be applied to other developing countries. Chapter 12: "Relevance of Taiwan's Experience for Other Countries" is devoted to this purpose, and it concludes that the achievements of Taiwan's agricultural development derive from government policies which either alleviated or removed various obstacles to development which proved to be beyond the ability of individual farmers to solve. He enumerates a number of institutions and conditions which were thus introduced: education, technical research, markets, land tenure, credit, etc. At the same time, in reference to the difficulties of implementing such developmental factors, we cannot ignore what E. O. Heady said, as quoted by Christensen,

Heady has pointed out that agricultural development is not a mysterious process. He says, "The important ingredients are rather obvious: the factors to stress are evident." They include improved technology, education, fertilizer and other capital inputs, credit, markets, incentive prices and so forth. But Heady goes on to say, "What is less obvious is how to overcome the political, cultural, and intellectual restraints which prevent nations from boosting agricultural productivity." (p. 78.)

How successfully does Christensen himself feel that he answered the latter question? In my personal view, conditions such as land, capital, technique, market, credit and other factors referred to in the above, are technical conditions and, exactly as the author states, constitute no mysterious process. It may well be that when these conditions are organized into an appropriate conceptual framework, it will be found that no real problem exists. The question, therefore, ought to be put in this way: "Why are they not organized in general in such a form in developing countries?" The author emphasizes the necessity of calling upon government policies as required, to help alleviate and eventually solve those obstacles which are beyond the power of individual farmers. Does he mean, then, that appropriate government policies are all that is needed and that for policies to be effective, it should be put into force on the basis of sound rational technical argument? After scrutinizing the enormous quantity of data resulting from his analytical study of Taiwan's experience, the author arranges the numerous conditions

which, through enforcement of official intervention, were converted into positive factors to bring about the rapid development of agricultural productivity. He seems to suggest that other developing countries should include an examination of official intervention in their study of technical knowledge. Whether or not the country would then put this knowledge to practical use would depend on the decision of the authorities. We cannot help feeling somewhat dubious about the efficacy of this. Take land reform, for instance. The author emphasizes the positive aspects of land reform, but he does not discuss the reason why it is failing to attract enthusiasm in many developing countries. No doubt land reform has its positive aspects with ensuing effects on productivity development, but, at the same time, the existence of resisting power to it cannot be neglected. In fact, it is this resistance and, not a lack of knowledge about the merits of land reform itself, that is primarily responsible for the wavering attitudes commonly seen in the developing countries. In this case, it would have been advisable if an exploration into the circumstances which made land reform possible in Taiwan had been undertaken, in as much as the analysis of its ensuing productive effects might enable other developing countries to learn practical lessons therefrom.

Another subject worthy of discussion is the author's high evaluation of the research and extension services which brought about appreciable productivity increase through minimal investment. However, the author does not specifically state whether this was a situation specific to Taiwan or one which may be found in other developing countries as well. The reviewer wonders whether by this the author means that the development of agricultural productivity in developing countries can be easily attained simply if the farmers are instructed in how to use techniques introduced from advanced countries. In addition, the author seems to hold the opinion that technology backed by economic rationality will be immediately adopted by farmers on the basis of rational choice. There is some doubt whether this concept can claim to be a principle universally seen in and applicable to all the developing countries. It might well to be remembered that free distribution of chemical fertilizer among local farmers by sugar companies in Taiwan during the Japanese occupation helped Taiwanese farmers make a smooth shift from traditional farming to "fertilizer-using farming." The experience of Taiwan would be more adequate as a model for remaining developing countries if analytic study had been carried back to the period of Japanese rule, rather than just to the end of World War II. (*Shigetō Kawano*)